

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	387	separation near5 duties	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:11
2	BRS	L2	25907 66	matrix or chart or table	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:12
3	BRS	L3	180	I1 and I2	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 10:09
4	BRS	L4	82134	conflict\$5 or fraud	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:13

	Type	L #	Hits	Search Text	DBs	Time Stamp
5	BRS	L5	44	I3 and I4	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55
6	BRS	L6	34894 92	compar\$5	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55
7	BRS	L7	222	I1 and I6	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55
8	BRS	L8	135	I2 and I7	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55

	Type	L #	Hits	Search Text	DBs	Time Stamp
9	BRS	L9	39	I4 and I8	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:56
10	BRS	L10	135	I3 and I6	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 10:15
11	BRS	L11	23214	business near10 (control\$3 or manag\$5)	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 10:15
12	BRS	L12	37	I10 and I11	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 10:15

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	387	separation near5 duties	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:11
2	BRS	L2	25907 66	matrix or chart or table	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:12
3	BRS	L3	180	I1 and I2	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 10:09
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	Type	L #	Hits	Search Text	DBs	Time Stamp
5	BRS	L5	44	I3 and I4	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55
6	BRS	L6	3489492	compar\$5	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55
7	BRS	L7	222	I1 and I6	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55
8	BRS	L8	135	I2 and I7	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 09:55

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12	BRS	L12	37	I10 and I11	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT	2005/04/27 10:15

	Type	L #	Hits	Search Text	DBs	Time Stamp
13	BRS	L13	1080	assign\$6 near10 (wrong or improper or conflicted or conflicting)	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT; IBM TDB	2005/04/27 10:29
14	BRS	L15	1	l3 and l13	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT; IBM TDB	2005/04/27 10:29
15	BRS	L14	1	l1 and l13	US-PGPU B; USPA T; USOC R; EPO; JPO; DERW ENT; IBM TDB	2005/04/27 10:29

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Set	Items	Description
S1	17475	(SEPARATION NEARS DUTIES) OR SOD
S2	5105345	MATRIX?? OR CHART?? OR TABLE??
S3	269	S1 (S) S2
S4	5838290	FRAUD OR RISK OR ABUSE??
S5	3845151	BUSINESS (S) (CONTROL OR MANAGEMENT)
S6	32	S3 AND S4
S7	3	S5 AND S6
S8	3	RD (unique items)
S9	32	S3 AND S4
S10	29	RD (unique items)
S11	17	S10 NOT PY>2001
S12	0	SEPARAT\$4 (10N) DUTIES
S13	1242	SEPARATION (10N) DUTIES
S14	244	S2 AND S13
S15	171	S4 AND S14
S16	142	RD (unique items)
S17	112	S16 NOT PY>2002
S18	98	S16 NOT PY>2001
S19	44708096	BUSINESS
S20	98	S17 AND S19
S21	1369340	CONFLICT?
S22	31	S20 AND S21

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Temp SearchSave "TD39249858" stored

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Dean T. Nguyen (3629)

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22/9,K/16 (Item 16 from file: 15)

DIALOG(R) File 15:ABI/Inform(R)

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Operational auditing using socio-technical systems analysis

Strefeler, John M; Thomas, Michael P

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ABSTRACT: Socio-technical systems analysis (STSA), a method borrowed from industrial engineering, provides the framework for an operational auditing approach that may help to promote greater organizational productivity and effectiveness. STSA is based on a concept of joint optimization - the technology and the

TEXT: Just-in-time systems, emphasis on total quality management, and increasing global competition are among the factors that are increasing pressures in manufacturing and service sector environments. The imperatives to identify production problems and their interactive down-the-line effects, defective controls, and the adaptive responses workers can make during production have never been greater.

To meet these challenges, many organizations have successfully used socio-technical systems analysis (STSA), a method borrowed from industrial engineering. STSA concepts provide the framework for an operational auditing approach that may help to promote greater organizational productivity and effectiveness.

All too often, audits and audit recommendations have been performed according to cookbook checklists and methods that focus on individual transactions in various functions. Recommendations for improvement have aimed at more separation of duties and formal internal controls, while employee discretion has been discouraged.

These methods often fail because the information acquired from them is not usually integrated or synthesized. Internal auditing has not always recognized the need to integrate organizational goals and actions in all functions. STSA can help auditors to identify the critical interdependencies among functions and to tailor their audits toward organizational goals and accomplishments.

THE STSA PHILOSOPHY

STSA is based on a concept of joint optimization; the technology (technical system) and the people requirements (social system) are jointly designed. STSA operates on the principle that technology is only one part of the process that produces goods and services, and that how people apply technology determines whether it is successful. If tasks can be performed within a system that meets workers' needs, they will be more committed to quality output, self-regulation, and quality improvement. The result will be fewer, more effective controls, with workers identifying and correcting problems through cooperation and communication.

STSA recognizes that workers need both the discretion and the ability to respond to a variety of circumstances, as well as the commitment to perform

necessary control tasks. The key ingredient for operational auditing success is audit involvement, achieved through a systematic approach that considers the social system to be a primary component of the system being audited.

THE SOCIO-TECHNICAL SYSTEMS OPERATIONAL AUDIT (STSOA) APPROACH

The auditees themselves are among the key players in the STSOA. The auditor functions as a design engineer, working with auditees as a member of the audit team, which may also include representatives from other appropriate departments, such as Personnel, DP, and Accounting.

The makeup of the audit team and its leadership may vary. The distinguishing characteristic of the group is that the auditees -- the people who actually do the work -- are the focal point of the audit effort.

Before the audit team actually begins its work, an overview of the organization's broad objectives, environment, functions, and products is presented. Within this context, the audit team formulates and reformulates the goals and policies that drive the system's activities, as it develops a policy document that identifies system boundaries, interactions, and problems. This process helps the team to deal with issues of user participation and responsibility in the analysis, design, and maintenance of specific internal controls.

The STSOA is comprised of four phases: the scan, the technical system analysis, the social system analysis, and recommendations for management:

PHASE I: THE SCAN

The scan, which is a vehicle for identifying the information and the people needed to perform the audit, involves five steps.

1. Basic Objectives: Identify the objectives (overall purposes) and goals (short-run, specific targets) of the system being audited.
2. Environmental Analysis: Identify environmental considerations that affect the system and its outputs, such as significant threats and opportunities that management should be aware of when they plan objectives, goals, and strategies.
3. Organizational Analysis: Identify the internal factors that create the strengths and weaknesses of the system.
4. Product Analysis: Specify what the finished product should do, how it should look, and what its quality requirements should be. List the inputs necessary to produce the output.
5. Definition of Critical Roles: The roles that are critical to success must be identified, along with the people who perform them. Include these people on the audit team.

PHASE 2: THE TECHNICAL SYSTEM ANALYSIS

In this phase, the objective is to analyze how production takes place so that an input/output model of the process can be developed. Four steps are involved.

1. List the steps in the production process that must occur in order to produce acceptable output. Group these steps together into the larger "unit operations" that represent significant transformations in the production process.

Grouping the essential tasks into recognizable transformations of the raw materials creates unit operations. Unit operations often become departments in traditionally designed manufacturing, or dedicated cells within JITs.

2. Identify the process variances within each unit operation. Specify all the things that could go wrong with materials, methods, or equipment, and which could cause the unit operation to fail to produce acceptable output or make it difficult for the employees to work efficiently and effectively.

Process variances cause cost variances. By simply preparing a list of these problems, workers gain greater insight into cause/effect relationships. This is a key step in getting the workers out of a "departmental mind-set" and into a global awareness of the need for control wherever and whenever the work is done.

3. Identify the key variances. Construct a Variance **Matrix** (Exhibit I). Unit operations should be listed down the left-hand margin, and variances should be placed on the diagonal. Start with the first variance and determine whether it causes any of the other variances. If two variances interact, place an "X" in the box where they intersect.

The processes involved in completing Step 3 help to identify those variances that significantly affect the capability of the system to do its job. A key variance seriously disrupts production.

One way to identify key variances is to look at the interdependencies among them. The **matrix** format helps by highlighting major chains of cause-and-effect relationships, thus providing a formalized map of the events that need to be controlled. In Exhibit 1, the audit team identified 28 variances that they considered to be significant.

4. Construct a Key Variance Control **Table** by placing the key variances in the left column and answering the (questions that appear across the top of the **table** for each key variance.

Exhibit 2, an excerpt from the Key Variance Control **Table**, illustrates the information required for two key variances. (Exhibit 2 omitted) It reports the extent to which each key variance is presently controlled by the technology or social system, and where important organizational and informational loops exist or are required.

The control **table** pinpoints the unit operation where a variance occurs, where it is observed for the first time, where it is controlled, what control actions were undertaken, what information flow is involved in diagnosis and control, and suggestions for activity-based management (ABM) and total quality management (TQM) improvements.

Evaluating and rewarding performances based on traditional cost variance reports has often led managers and workers to be primarily concerned with minimizing their own cost variances, regard less of the problems that this might cause down the line. STSA can shift this focus so that all employees are more attuned to organizational goals.

PHASE 3: THE SOCIAL SYSTEM ANALYSIS

System control is ultimately the responsibility of the people within the system. Thus for improvement, formal training programs are needed so that they can adapt to the system's changing needs. Formal evaluation and reward systems must be included to promote these behaviors. The accounting system also must facilitate communication and coordination among unit operations.

The Social System Analysis provides a clearer picture of the "people

requirements" needed for control, coordination, adaptability, and flexibility so that the technical system can achieve its goals. The three steps of the Social System Analysis can help identify how the system satisfies its control goals, and the focal roles necessary to do this.

1. Within the unit operations, identify the focal roles that are critical to the system's efficient and effective production.

In an STSA, the most important roles are those most directly involved in the control of key variances, the "key focal roles." Step 1 identifies these roles and serves as a bridging function between people and positions, although a perfect fit between individual and organizational role expectations seldom results. Thus, some form of accommodation is required to clarify and satisfy mutual expectations. Otherwise, dysfunctional behavior, often characterized by low productivity, apathy, and absenteeism, will result.

2. Control the Role Network for each key focal role.

Any social system, if it is to survive, must perform four basic functions: (G) Goal Attainment, (A) Adaptation, (I) Integration, and (L) Long-term Development -- GAIL. Every organization exists in order to meet the short-term goal of producing its products (G). However, in doing so it must not adversely impact its capacity to survive. Consequently, the system must adapt to, and be protected from, short-term changes in its immediate environment (A). It must also coordinate activities to manage internal conflict and promote smooth interactions among people (I). Finally, it must ensure long-term development of knowledge, skills, and motivation to cope with goal-related, environmental, and systems requirements in the future (L).

Many organizations have departments to perform these functions. For example, industrial engineering, budgeting, and personnel departments can carry the main responsibilities for one or more of the four basic social system functions. Yet, not all activities are handled by special departments. Indeed, informal activities at the focal role level are often more influential in affecting behavior.

The role network shows the GAIL functions that each relationship affects. (2) For instance, assembly workers have more contact with each other than with any other role, but they are in contact with one another mainly about matters of running the line (G). Their upward relations with the manager involve requesting supplies or machine repairs, requiring changes in the environment (A). The manager initiates contacts with the assembly workers to ensure that the line continues to function and that key variances are controlled (G). The manager also communicates changes in production levels caused by sales (A) and can raise the levels of friction and resentment between assembly workers and management through the tone and content of these instructions (I).

3. Construct the Social Systems Grid (Exhibit 3) by listing the four GAIL functions as rows and the four interpersonal relationships as columns. (Exhibit 3 omitted) Synthesize information obtained from audit questionnaires about the four GAIL functions with respect to each key variance.

The Social System Grid combines the four GAIL functions with the interpersonal relationships identified in the role network and adds four organizational relationships found in most systems: (1) vertical relationships between superior and subordinate, (2) horizontal relationships between the focal role and similar status members of his or her work group, (3) cross-group relationships between the focal role and

people in adjacent groups, and (4) relationships between outsiders and the focal role.

In completing the grid, the audit team should describe behaviors, or their absence, in each of the 16 cells. For Goal Attainment behaviors, cell entries can be drawn directly from the Key Variance Control **table** (Exhibit 2) for all the key variances identified in the Technical System Analysis. Behaviors for the other three rows (A, I, L) must be obtained from audit questionnaires.

Some information can be drawn directly from the role network representing present, actual behaviors. For example, in Cell G-3, the Assembly workers' attempts to communicate with Lettuce Preparation workers is described under "Variance 32," while Cell I-3 describes the Lettuce Preparation workers' disinterested response to such attempts.

As noted, the grid permits description of behaviors that are not occurring in the achievement of essential functions by specified relationships. For example, behaviors that are not occurring, but which could be, are noted in Cells A-2, I-2, and L-1. The grid can summarize the Social Systems Analysis in the following ways:

- * Consider each cell of the grid. Does it describe a positive, negative, or neutral condition? Do existing behaviors frustrate the focal person or others in the role network?
- * Will existing behaviors improve or deteriorate organizational performance?
- * Will the introduction of behaviors not presently occurring improve organizational performance or the feelings of the people involved?
- * If the grid remains unchanged, will organizational effectiveness deteriorate, stay the same, or improve?

PHASE 4: RECOMMENDATIONS

The last phase in the STSA involves integration, synthesis, and recommendations for redesign -- the formal audit report. If managers cannot foresee production problems, they cannot plan corrective actions, nor can they prevent problems arising outside the system. Communication (the information system) is important because problems should be controlled at the point where preventive and corrective actions can be most efficiently and effectively taken. Similarly, if workers are not aware of anticipated problems and preplanned corrective actions, they will not control variances at the appropriate point, nor will they comprehend the importance of doing so.

The social system control structure and its support information system must be designed so that problems can be anticipated and corrective actions can be planned; provide historical information about the costs of various problems, and how and where they were corrected; and allow workers and managers to monitor the production process so that they can identify unexpected problems and formulate globally optimal solutions as quickly as possible. Managers must be able to identify, communicate, and cooperate with other departments about potential interdepartmental problems and solutions.

The STSA can be used simply to provide a fresh look at an existing system, as a formal procedure in an ABM and TQM reengineering project, or to design a new operation, department, or organization. The audit report should be

the vehicle for integration and synthesis of the data gathered in the STSA.

To facilitate integration, each of the STSA outputs (the Variance Matrix, Key Variance Control Table, and Social System Grid) should be reviewed by the audit team. The four questions cited in Phase 3 should be answered as each key variance is traced through these outputs.

Committing findings and recommendations to writing is an important process. To ensure that a systematic approach has resulted, the operational auditor cannot prepare the report alone. For acceptance and commitment, the entire team must be involved throughout the entire process, including the preparation of the final report. If the report is viewed as coming from a detached, independent auditor, the probability of rejection and lack of improvement in productivity is increased.

Finally, for lasting productivity improvement, the audit team's work does not end with the report. The team should be continued as the system's control team, and the STSA outputs should be reviewed and updated on a periodic basis. The information should be constantly available to those in key focal roles and used to promote ongoing productivity improvements.

SUMMARY

STSA provides a framework for organizing and linking operational auditing information into an organizational scan, a technical system analysis, and a social systems analysis. Joint optimization is the key concept. The social system -- the people requirements -- must be an integral part of the technology and control systems.

By carefully integrating people requirements into the analysis, the internal auditor can help develop more meaningful solutions. Workers and managers are more likely to support audit recommendations after having been part of the team that performed the operational audit and drafted the recommendations.

Operational audits can be effective tools for integrating audit findings into systematic recommendations for productivity improvements. STSA may provide the overall framework that makes it possible to identify the interrelated technological and people requirements in operational auditing engagements.

EXHIBIT 1

(Grid omitted)

FRESHLOCK SANDWICH COMPANY HAM AND CHEESE EXTRAORDINAIRE

Freshlock Sandwich Company manufactures ham and cheese sandwiches distributed through vending machines. The basic objective of the system process is efficient, timely production of quality sandwiches.

The internal audit department has been asked to perform an operational audit of the manufacturing process. Complaints have been raised about a lack of cooperation and communication among departments in identifying and correcting problems, and the growing rejection rate of sandwiches is troubling. Rejects and rework have increased costs, disrupted production, and led to increasing friction between workers and managers.(1)

SYSTEM GOALS

Specified goals are that workers and managers will (1) identify and correct problems as they occur, minimizing rejects and cost overruns; (2) understand the interactive effects of their actions; and (3) communicate and coordinate actions to find the least-cost corrective actions.

SANDWICH SPECIFICATIONS

Some of the sandwich quality specifications include (1) two slices of equal size bread, no ends or heels; (2) two slices of ham, visually inspected for freshness, consistency, and color; (3) one slice of Swiss cheese, visually inspected for freshness, shape, and size; and (4) two leaves of lettuce, visually inspected for crispness and color. For lettuce, the input specification includes two layers covering the entire slice of bread with no visible bug damage, no lumps or cores used (hence outer leaves only), and color ranging from dark through light green (no white leaves).

UNIT OPERATIONS

The unit operations at Freshlock were set up as separate departments: Purchasing, Receiving (and Storage), Ham Preparation, Cheese Preparation, Lettuce Preparation Assembly, and Packaging and Inspection.

LUMPY LETTUCE

Although this may seem to be a minor item, it is obvious from the matrix that it is worthy of further attention. Looking down column 32 of Exhibit 1, lumpy lettuce causes or interacts with seven other variances down the line. For example, lumpy lettuce makes it hard for the operator in Packaging to level and cut sandwiches, and likewise, to package and seal those that contain lumpy lettuce.

This variance occurs in one department and is transported through the system to wreak havoc on other departments. The problem arises because of conflicting goals.

Since Lettuce Preparation performance evaluation is based on speed of processing and low scrap rate, as measured by a traditional cost variance reporting system, workers are not always careful about shipping cores and unprocessed lettuce (lumps) to Assembly. When this happens Lettuce Preparation looks good because they cut their scrap rate, minimize their labor and material usage cost variances, and meet their scheduled processing time.

However, Assembly looks bad when unscheduled time is required to process lettuce, discard the cores, or make lumpy sandwiches. As the situation is currently structured, Assembly has three alternatives: (1) produce lumpy sandwiches, even though other variances will occur further down the line or the sandwich will fail final inspection; (2) stop and process the lettuce and risk failing to make their time-studied quota; or (3) scrap the lumps and be penalized or using too little lettuce, or too much lettuce if more is requisitioned.

Assembly is caught in a classic Catch-22 situation. Regardless of what these workers do, they are going to look bad (according to the cost variance reports used to evaluate and reward them), while Lettuce Preparation looks great.

SUGGESTIONS FOR IMPROVEMENTS

1. Change the evaluation and reward system to reduce this clash in goals. As it now stands, performance measures using traditional cost variance reports are inappropriate for motivating the total system to produce a high-quality sandwich. Tie Lettuce Preparation's performance to Assembly

via some sort of joint reward structure.

2. Install lettuce-shredding machinery.

3. Change from traditional production departments to JIT production cells so that workers are responsible for the complete production of these sandwiches.

FOOTNOTES

1 This example is based on Thomas, et al., and his expanded "An Example Socio-Technical Analysis for the Cotter-Cherns Scottish Sandwich Corp., Ltd.," originally developed by E. Lauck Parke, University of Vermont, and revised by James Taylor and John Cotter, Center for Quality of Working Life, Institute of Industrial Relations, University of California, Los Angeles (1980).

2 Only one of the Social System Analysis flowcharts and **tables** is presented here. The other STSA outputs, including the Transformation Flowchart, are available from the authors: Department of Accounting and Computer Information Systems, College of **Business** Administration, University of Nevada -- Reno, Reno, Nevada 89557-0016.

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...TEXT: that focus on individual transactions in various functions. Recommendations for improvement have aimed at more **separation of duties** and formal internal controls, while employee discretion has been discouraged.

These methods often fail because...

...wherever and whenever the work is done.

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The control **table** pinpoints the unit operation where a variance occurs, where it is observed for the first...

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...LETTUCE

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John M. Strefeler, PhD, is Associate...
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22/9,K/13 (Item 13 from file: 15)
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Control options for the public manager: An analytic model for designing appropriate control strategies
Tankersley, William B; Grizzle, Gloria A
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DESCRIPTORS: Public administration; Models; Strategic planning; Internal controls; Management science
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9130 (CN=Experimental/Theoretical); 9190 (CN=United States); 9550
(CN=Public sector)

ABSTRACT: An analytic model that may be helpful in the diagnoses of control issues and the design of control strategies in public organizations is presented. An integrated overview of the various categories of control options presents a useful framework from which the analysis of complex management scenarios can be made and with which applicable control options and strategies can be highlighted. It is suggested that the analytic model presented may be used beneficially in 2 ways. First, for practicing public managers who find themselves faced with maintaining control of an existing public program, the model offers insight into the analysis of control problems and issues while defining control options that may be available. Second, and perhaps more important, the use of the model during the initial design stage of public programs may provide needed guidance in the selection of workable options for controlling programs after they are in place.

TEXT: Public management control requires a frame of reference that assists practicing managers in recognizing and responding to the various control problems found in the organizational environments of public programs. Typically, these problems include the following: program goals are diverse or ambiguous; agency employees are driven by widely differing internalized value systems and harbor goals that conflict with goals of other employees as well as with program goals; tasks vary with respect to the available knowledge of the process required to carry out the task; and, in some cases, tasks vary with respect to one's ability to detect when, or even if, the task is completed. The variable combinations of these elements tend to form complex public management problems that require different approaches to management control. This is true in the analysis and fine-tuning of existing control systems for programs in place as well as in the design of prospective control systems for emerging programs.

Need for a Framework for the Analysis of Control Problems

Management literature is filled with different approaches, techniques, and methods that have been suggested as being useful for maintaining control in organizations. The range of such literature is wide. Political economists, sociologists, social psychologists, organizational theorists, accountants, program evaluators, and organizational economists all address control in organizations. Control issues are approached in the literature at different

levels of analysis; they are analyzed from the perspectives of different social assumptions; and separate studies of similar control issues produce multiple, often incompatible solutions to the same problem. (For interesting but widely varying approaches to organizational control, see Anthony and Herzlinger, 1980; Downs, 1966; Eisenhardt, 1985; Hofstede, 1981; McGregor, 1985; Merchant, 1985; Perrow, 1986; Schein, 1985; Weiss, 1986; and Williamson, 1986.) Due to this multiplicity of control theories and options, one major problem faced by the individual public manager is the difficulty in obtaining a broad overview or frame of reference, from which an intelligent choice of appropriate control theory and appropriate control mechanisms can be made. The underlying cause of this condition resides in the present state of the art of organizational control theory. According to Eric Flamholtz, "the body of knowledge of organizational control currently has a fragmented quality. This is simply a characteristic that is typical of scientific fields during their early stages of evolution, and thus there is a need for some integrative work to bring order to this field" (Merchant, 1985, p. ix).

In response to this state of control theory, at least one scholar has taken the initiative by integrating the various fragments into an analytical control framework that primarily focuses on control problems found in the private sector (see Merchant, 1985). A similar integrated frame of reference would be helpful to the individual public manager as he or she approaches the decision of which control theory or control mechanism to apply to a specific public organizational control problem.

The Framework: A General Model of Control

To assist the public manager in conceptualizing the relationships between the various control choices available, an elementary model of public organizational control has been adapted from existing literature for the purpose of providing a rudimentary framework from which public sector management control problems can be analyzed. (The essential features integrated into this model are drawn from concepts found in Eisenhardt, 1985; Hofstede, 1981; Merchant, 1985; and Ouchi, 1979.) The model comprises categories of management control mechanisms along with an abbreviated inventory of control mechanisms that fit into the various categories. The flow chart shown in Figure 1 (pp. 4-5) depicting the general control model is an adaptation and combination of separate flow charts developed by Hofstede (1981) and Merchant (1985). (Figure 1 omitted) Feasibility criteria designed to determine which control category would be most appropriate for the solution to specific control problems are also included. There are five categories of control mechanisms in the model: political controls, avoidance controls, personnel controls, action controls, and results controls. A discussion of each category and its application follows.

Political Controls. Political controls are appropriate when organizational goals are ambiguous (Hofstede, 1981). Such goals are likely to result "because of conflicts of perceived interests and/or values among those having a say in the activity" (p. 194), and voluntary, charitable or professional organizations are particularly vulnerable due to the special ideological commitment of organization members. Ambiguous goals also occur "because of a lack of knowledge about means-ends relationships in which the activity considered represents the means" (p. 194). Hofstede illustrates this ambiguity by noting the situation where a higher-level objective, such as the reduction of unemployment, is agreed on, but where there are different beliefs about whether the specific, proposed activity will in fact reduce unemployment. In the face of such disagreement, it is appropriate to invoke political controls in order to render the ambiguous goal unambiguous. To carry out the control process, it is necessary to

resolve external goal uncertainties so that they become certainties with respect to the internal control system.

The group of political control mechanisms that can be used to resolve ambiguous goals into certain, unambiguous goals includes using higher authorities to set explicit goals for subordinates, thus removing goal ambiguity for the subordinates; allowing higher authorities to set rules and fixed policies that remove ambiguity for lower levels; subjecting conflicts of perceived interests and values to trade-offs through negotiation (a negotiated goal is not an ambiguous goal); providing outside experts who remove ambiguity caused by confusion about means-end relationships; and allowing a crisis to develop so that the number of perceived alternative solutions to a problem is reduced (Hofstede, 1981). Political control mechanisms are usefully summarized by Hofstede as follows: "When ambiguities in objectives exist, control is always political control, dependent on power structures, negotiation processes, the need for the distribution of scarce resources, particular interests, and conflicting values; however, political control at the top of an organization can go together with other forms of control inside the organization, because for the members, the political top may have resolved the ambiguities" (p. 198).

Avoidance Controls. Avoidance is the second category of control mechanism considered in this model. In some instances, managers may be unable to effectively control in-house activities or programs that are needed to produce mandated results. This can occur due to, among other things, a lack of trained personnel or resources, or to a general lack of knowledge as to how to carry out the steps required in the transformation (production) process. In such cases, subcontracting, licensing, or some other form of divestment of the responsibility may be appropriate (Merchant, 1985). Divestiture can reposition the agency with respect to a prescribed program or activity so that it can maintain adequate control of impacts without engaging in direct control of production operations. In some cases, the organization can rely entirely on market controls. (For an interesting analysis of outsourcing of human services by governmental agencies, see DeHoog, 1984.) Kolderie, 1986, asks the question, "Is [privatization] the policy decision to provide a service? Or is it the administrative action to produce a service?" (p. 285).

Hatry (1983) describes twelve methods by which government agencies can effect privatization, which in one sense can be understood as a type of avoidance strategy. These include contracting out, granting franchises, awarding grants or subsidies to help private organizations perform work, substituting volunteers for government employees in a production or service process, encouraging self-help or do-it-yourself projects, altering regulations or tax policy to encourage private activity, trying to demarket and reduce demand for services, using temporary help from private firms, charging user fees to reduce demand for services, and forming joint public-private ventures. Although each of these privatization techniques can prevent some control problems that might otherwise be incurred by a public sector organization, clearly the use of one or more of them may simply redefine the substance of the control problem rather than prevent control problems altogether. However, it may be that the redefined problem is one the agency is more capable of handling. For example, the agency may be more adept at controlling a contractor or provider than it is at controlling the daily operations involved in the direct production of the service. In such cases, control by avoidance can improve agency performance.

Personnel Controls. Personnel control encompasses a wide variety of mechanisms, and there are two levels at which these control mechanisms may be brought into play: self-controls at the level of the individual and

social controls at the level of the group (Merchant, 1985). Managerial ideologies, decision premises, attitudes, beliefs, values, organizational culture, professionalism, training, selection, and placement are all variables that can be considered at each of these levels (see Ouchi, 1979; Perrow, 1986; Schein, 1985; Simon, 1976; and Weiss, 1986). With respect to these mechanisms, Merchant notes that if properly harnessed, the internal motivation of individuals can result in very powerful control over individual behavior; "It has long been realized that work groups can influence the behavior of individuals in the group" (p. 40). Likewise, Anthony Hopwood (1976) emphasizes the impact of personnel controls on the organizational control process, saying "the controllers and the potentially controlled have a social relationship with one another. The motivations, expectations and personal relationships of all the members of the enterprise therefore exert a significant effect on the outcome of the control process" (p. 27). Perhaps Merchant's comment with respect to the impact of culture and shared values within an organization is the best summary of the potential for personnel controls: "Cultures have powerful influences on people's behaviors, and they have the advantage of usually being a relatively unobtrusive form of control. The limits of acceptable behaviors may be prescribed in terms as simple as 'the way we do things around here.' The people whose actions are being controlled may not even think of the shared norms as being part of the organizational control system, but it is clear that organizational cultures (that is, shared values) can substitute for other more formal types of controls (p. 42).

Action Controls. The most important forms of action controls are action accountability, preaction reviews, and behavioral constraints (Merchant, 1985). Ouchi (1979) provides the initial insight necessary to justify the use of action accountability as a control mechanism: "If we understand the technology (that is, the means-ends relationships involved in the basic production or service activities) perfectly,...then we can achieve effective control simply by having someone watch the behavior of the employees and the workings of the machines: if all behaviors and processes conform to our desired transformation steps, then we know with certainty that proper [products or services] are coming out the other end, even without looking. By specifying the rules of behavior and of process, we could create an effective bureaucratic control mechanism" (p. 843).

In other words, in order to use action accountability effectively, one must have a high level of knowledge of the actions that are required in the transformation process to produce the desired outcomes and impacts. Although this knowledge is necessary, it is not sufficient for using action controls. "The implementation of action accountability controls requires (1) defining what actions are acceptable (or unacceptable), (2) tracking what happens, and (3) rewarding or punishing deviations from the defined limits.... [Action accountability] is the core element in what is labeled as bureaucratic control or administrative control" (Merchant, 1985, p. 31). Action accountability, then, is a useful control mechanism when steps in the transformation process can be specified and when these steps can be accomplished through the use of rules, regulations, and oversight.

Preaction review, as the name implies, involves observing the work and plans of individuals before the particular activity is completed so that adjustments can be made if necessary (Merchant, 1985). There are two different, but important, control effects of preaction reviews. First, the review of planned activities can eliminate mistakes or harmful actions before they occur. Second, the very fact that these reviews are anticipated as a recurring element in the transformation process prompts extra care on the part of individuals whose plans are to be reviewed.

The third category of action controls, behavioral constraints, can be

divided into two subgroups, physical constraint and administrative constraint (Merchant, 1985). Examples of physical constraints are locked desks, computer passwords, and other physical barriers that limit access to valuable inventory or sensitive information. These devices provide simple, straightforward means of controlling some behaviors. Administrative constraints, on the other hand, tend to address more complex behaviors and take several forms, some of which are not commonly recognized as behavioral constraints. Centralization of decision making can be understood as an example of such a constraint. By removing autonomy from lower-level individuals, it is hoped that important decisions will be made only by responsible, knowledgeable managers who will not make costly errors in judgment. Another example of administrative constraint is the **separation of duties**, wherein a particularly sensitive task is decomposed into one or more processes so that more than one individual is required to complete the whole task. "Proper administrative constraints such as centralization and **separation of duties** make it impossible to complete certain tasks that should not be completed. The end result is identical to that of the physical constraints" (Merchant, 1985, pp. 30-31).

It is clear that action controls are feasible only when two criteria are met: knowledge must exist as to what actions are desirable or undesirable, and one must be able to ensure that the desirable action occurs or that the undesirable action does not occur (Merchant, 1985). These criteria impose stringent but often overlooked limitations on the use of action controls. In many cases, specific knowledge of the transformation process is inadequate; in such cases, action controls are patently inapplicable. Even when the production process is relatively clear, it is necessary to ensure that when the overall process is disaggregated and specific assignments are made to functional groups and individuals, the actions for which groups or individuals will be held responsible are congruent with overall organizational success. There are associated problems: prescribed actions must be stated precisely so that compliance can be determined; reports of actions must be objective; management must be able to determine what actually happened; management must receive action reports in time to respond effectively; actions must be specific enough that it is clear to the controlled individual what is expected of him or her; and rewards and punishments must be adequate to ensure desirable action.

Results Controls. Results controls focus attention on the impacts or ultimate outcomes that result from a program, activity, or transformation process. (For a discussion of the need to distinguish between program effects and program outputs in the evaluation of public program effectiveness, efficiency, and productivity, see Grizzle, 1979.) The distinguishing feature of results control is that this group of control mechanisms, where feasible, yields excellent control while at the same time allowing for individual autonomy: As long as an individual or unit operating under a results control mechanism is producing the desired outcome or impact, that individual or unit will be granted the freedom to determine the actions undertaken within the production process. Where feasible, and in the absence of a less costly control mechanism that produces the same result, there seems to be little justification for the use of any control mechanism other than a result control, be it avoidance, personnel, or action control.

Unfortunately, in many situations, results controls are not feasible. Merchant (1985) says that results controls are feasible only when knowledge exists as to what results are desirable, the desired result areas can be controlled (at least to some extent) by the individuals whose actions are being influenced, and the controllable result areas can be measured effectively.

Each of these criteria presents its own unique problems. In public sector organizations, it is not uncommon for desired results to be ambiguous or even unknown. Some public projects are undertaken on a best-efforts basis where a problem is known to exist, but where it may be unknown if anything can be done about it. In some cases where improvement can be accomplished, it is difficult to evaluate increments of improvement. For example, how does one evaluate an improvement when the problem situation, although improved, remains unsatisfactory?

The significance of the lack of controllability of results should not be lost on the analyst. Some results simply are not controllable due to uncertainties and random events. In such cases, the control system should not be faulted for bad results, and randomly occurring positive outcomes should not be credited to the control system. This second criterion might be considered more nearly correct if it indicated that in order for results controls to be feasible, results must be more deterministic than uncertain. (Agency theory recognizes the **risk**-bearing implications of control strategies. See Eisenhardt, 1985, and Fama and Jensen, 1986, for an introduction to the control implications of this body of theory.) In any case, it is true that "the effectiveness of results control is inversely related to the importance of the noncontrollable factors that affect the results reports" (Merchant, 1985, p. 24).

Effective measurement of results, like effective measurement of actions or any other measurement used for decision purposes, is fundamentally based on relative preciseness, objectivity, timeliness, and understandability of the measure. Additionally, it is critical that the measure used actually present information relevant to results that are congruent with organizational goals and objectives (Merchant, 1985). The success of a fisherman is determined by the number of fish caught, not the number of hooks baited.

Analysis Using the Control Framework

The following is an analysis of certain aspects of a Florida public program established by the Community Care for the Elderly Act (Florida Statutes 410.021-410.029). This analysis is made from the perspective of the control model described above to demonstrate the use of the model as an analytical tool. Inspection of an existing public program using this framework should provide insight into the model's potential for highlighting control issues and assisting in the choice of appropriate control mechanisms.

The purpose of Community Care for the Elderly (CCE) is to provide assistance to functionally impaired elderly persons in the state of Florida in the hope that they will be able to live dignified and reasonably independent lives in their own homes or homes of others (Florida Department of Health and Rehabilitative Services, Office of the Inspector General, Office of Evaluation, 1980). The underlying rationale of the program seems to be that the institutionalization of the elderly can be minimized, or at least deferred, through the provision of core services to selected clients. Of particular interest here are the control issues that surface when the initiation and implementation of such a program are analyzed using the prescribed control framework. The analysis is presented in terms of each control category in the model.

Political Controls. With respect to the imposition of political control mechanisms, the primary control issue is associated with the following questions: Are the program objectives ambiguous? If so, can this ambiguity be resolved? As above, the political control options available for obtaining unambiguous goals fall into four categories: resolution by higher authority, negotiation and trade-offs, resolution of means-end confusion,

and crisis management. In the case of CCE, goal ambiguity has been resolved by the legislature acting in the role of a higher authority relative to subordinate administrators, in this case the Florida Department of Health and Rehabilitative Services.

Originally, this department was charged with the responsibility of implementing the act, and the act was explicit as to the services that were to be provided. Although Section 410.022 expressed the legislative intent in somewhat ambiguous terms ("The purpose of this act is to assist functionally impaired elderly persons in living dignified and reasonably independent lives in their own homes or in the homes of relatives or 'caregivers' through the development, expansion, reorganization, and coordination of various community-based services"), specificity was accorded this stated intent in Section 410.0241. In this latter section, the core services to be provided are defined: "Core services shall be limited to homemaker and chore services, respite care, adult day care, medical transportation, mini-day care, home-delivered meals, and health maintenance services."

The fact that goal ambiguity is not a major control problem for this program can be inferred from the clarity and specificity of the language of the statute and from the absence of references to goal ambiguity in documents that were reviewed for this study. (These documents included administrative evaluations performed subsequent to the enactment of the program, studies of elder care in Florida that include consideration of the CCE program, a lead agency grant application and contract to provide service, a summary of the operations of a lead agency, and CCE program regulations.) Ambiguity of program goals is not a problem for CCE. By specifying the services to be provided in the program, the legislature has assumed responsibility for the means-end transformation process and, in so doing, it has defined specific objectives that might otherwise have been ambiguous for those charged with the implementation of the legislative intent. (Additional consideration is, however, given to the transformation process.)

Avoidance Controls. Subsection (4) of Section 410.024, Florida Statutes, provides, "The department or contracting agency shall contract for the provision of the core services required by a community care service system. However, the department may provide core services when such services cannot otherwise be purchased." Subsection (2), Section 410.0241 continues, "Core services and other support services may be furnished by public or private agencies or organizations." Here, too, the legislature has taken the initiative with respect to control strategy, in this case specifying an avoidance control mechanism. Contracted delivery of services is preferred to in-house delivery; the state agency is to deliver services only when the services cannot otherwise be purchased. The enabling statute thus shifts the control function from one of controlling service production operations within the departmental hierarchy to one of controlling the activities of contractors. Clearly, the substance of these two control functions is quite different, and the impact of this choice on program control is significant.

It should be noted that because CCE services are to be furnished by public or private organizations, the statute follows the model of quasi-market control prescribed by public choice theorists. That is, "instead of using its own bureaucracy, the relevant government" body can purchase the services directly from public or private sources through a process of competitive bidding or competitive negotiation, thus developing quasi-market conditions and achieving a desirable degree of flexibility and responsiveness" (DeHoog, 1984, p. 5).

With respect to CCE activity, the legislature opened the door for use of market controls. However, in order for market control to be effective as

argued by public choice theorists, the neoclassical economic assumptions implicit in market control must fit the economic and competitive environment of the program or activity to be controlled. From this perspective, the control model suggests the question, Is the competitive structure of the market within which CCE exists such that market control is appropriate for the program? Should reliance be placed on these controls? Or should a general analysis of this competitive structure be made before the decision to contract out? Is it possible that some markets simply do not meet the competitive assumptions required by the public choice theorists?

The legislature indicates its interest in program cost effectiveness and efficiency. Section 410.022, Florida Statutes, includes the following: "The development of innovative approaches to program management, staff training, and service delivery that have an impact on cost-avoidance, cost-effectiveness, and program efficiency shall be encouraged." However, nothing in the statute calls for analysis of potential competitive conditions in the contracting process that result from the structure of the economic environment in which CCE will operate.

An explicit concern for maintenance of a competitive environment with respect to the operations of CCE was found in Chapter 20 of the CCE program regulations. This chapter is titled "Lead Agency Contracting and Procurement" (Florida Department of Health and Rehabilitative Services, 1982), and subparagraph 20-3(i) includes the following language: "All procurement transactions of the lead agency, regardless of whether negotiated or advertised and without regard to dollar value, must be conducted in a manner so as to provide maximum open and free competition. The lead agency must be alert to organizational **conflicts** of interest or noncompetitive practices among contractors, which may restrict or eliminate competition or otherwise restrain trade" (pp. 20-24).

This language (as well as other relevant portions of the regulations) seems to focus concern for the maintenance of a competitive environment on the behavior of the contracting parties rather than on the fundamental economic structure of the market in which the parties are operating. It is true, however, that market control requires more than the mere absence of **conflicts** of interest or the presence of noncompetitive practices among contracting parties. Although these are necessary conditions, they are not sufficient for a competitive market; the structure of the market must also be considered.

Other imperatives sometimes require (or result in) avoidance control in the form of outsourcing. These include the imposition of ceilings on the size of the work force (Benda and Levine, 1988), lack of trained personnel within the department, lack of other resources within the department, or lack of knowledge of the specifics of the transformation process. Although these may be legitimate reasons to contract out service delivery, an explicit analysis of the competitive structure of the market environment for CCE services would provide interesting insights into market controls and public choice theory as they apply to this type of public program. The control model suggests the utility of completing such an analysis before deciding to use markets as a form of avoidance control.

Personnel Controls. The Community Care for the Elderly Act provides for the training of service workers. Subsection 410.024 (3), dealing with the use of volunteers, says, "The department shall provide or arrange for the provision of training and suspension of volunteers to ensure the delivery of quality services" and Subsection 410.0241 (5) indicates that a "preservice and inservice training program for community-care-for-the-elderly service providers and staff may be designed

and implemented to help assure the delivery of quality services." CCE evaluation reports indicate that "[t]raining is regarded as a priority by the lead agencies.... Typical of the reported results of training were improved job performance, knowledge, and morale" (Florida Department of Health and Rehabilitative Services, Office of Inspector General, Office of Evaluation, 1981).

Although CCE program regulations (Florida Department of Health and Rehabilitative Services, 1982) provide for employee training in the background and purpose of CCE, most attention directed to training in the CCE program seems aimed at providing technical knowledge concerned with accomplishing program objectives at the operations level.

It is implicit in any training program that employees are socialized to program goals and can be positively affected by group social processes, but these concepts were not explicitly addressed in the material examined in the review of CCE. Personnel control, as defined and discussed above, suggests rather strongly that hot only do training programs have as their purpose the practical training of workers in methods of carrying out their daily tasks, but control also can be obtained through the internalization of organizational values by employees and workers as these individuals are indoctrinated in training programs. The literature noted indicates that explicit attention to ideology, decision premises, attitudes, beliefs, values, organizational culture, and professionalism can effect control of program efforts. The control model suggests that CCE training programs be examined to determine whether more emphasis should be placed on these socialization variables.

Action Controls. Consideration of CCE in terms of action accountability provides an interesting application of the control model as an analytical tool. Action accountability requires defining the actions that are acceptable, tracking what happens, and rewarding accomplishment of the action or punishing deviations from the defined limits. In this model, action accountability is understood as the core element of bureaucratic, or administrative, control; it would be surprising if one did not find evidence of action accountability in the CCE program.

In order to define acceptable actions for a program such as CCE, it is necessary that the means-end relationships in the production process be understood. It is also necessary that the actions at lower levels produce the desired overall program ends as actions are disaggregated and assigned throughout the organization. Thus, the comprehensive assessment of action accountability would require control analysis at the various levels throughout the organized production process.

Judging from the stated legislative intent in Subsection 410.0241 (1) and the prescribed criteria for evaluating program success in Subsection 410.024 (9), the overall goal of CCE is to reduce inappropriate institutionalization of elderly persons, and reduce the use of institutional services and facilities. For CCE, the issue highlighted by action accountability is, How are these goals to be accomplished? What are the precise steps in the transformation process whereby program inputs are transformed into the desired program outputs?

The legislature apparently feels that the provision of core services will provide the required steps in the transformation process. If, for the moment, this assumption is correct, the question then becomes, What is the impact on administrative controls of the legislative decision to require that specified services be rendered to the elderly? The mandated core services include homemaker and chore services, respite care, adult day care, medical transportation, mini-day care, home-delivered meals, and

health maintenance services. There is little mystery in the transformation process required to produce these outputs. Therefore, according to the control model, action accountability is appropriate as a control method for managing these activities.

Correspondingly, a review of selected CCE program materials reveals a great deal of effort being expended in attempts to effect action accountability controls. These controls take the form of the familiar rules, regulations, and reports typically found in bureaucratic forms of organization. As to the control requirement that actions be defined in order to effect action accountability, program administrators have developed specific definitions of activities and unit measures of these activities. Furthermore, as for tracking these activities (and their costs), this requirement is either met or actively pursued. As might be expected, some reports include the criticism that the paperwork required by tracking systems within CCE is overly burdensome.

The utility of the control model as a diagnostic tool can be further illustrated with the third imperative of action accountability described above. This requirement is that accomplishment of prescribed actions be rewarded and deviations from planned actions be punished. In this connection, one CCE evaluation report (Florida Department of Health and Rehabilitative Services, Office of Inspector General, Office of Evaluation, 1981) addresses subcontracting activities of lead agencies that provide CCE services and reports that responses from lead agencies varied in their descriptions of what happens when a subcontractor does not provide the agreed-on services: "Should providers not deliver agreed upon Services, 30 percent of the agencies reported that, through dialogue, an attempt is made to rectify the situations. Thirty percent said that services have been delivered as agreed, 30 percent did not elaborate, and one agency indicated that if another provider could be found, the current subcontractor would be dropped" (pp. 51-52).

No systematic effort providing rewards and penalties to subcontractors for contract compliance is seen in this report; it is doubtful that "dialogue" would meet the third action accountability test imposed by the control model. Thus, here the model draws attention to incentives (or the lack thereof) that are offered in a system of action accountability; and, in the case of CCE, the model suggests that more effective motivational methods be explored for rewarding successful subcontractor performance and penalizing poor performance. An annual contract, once renewed, diminishes greatly in motivational power; a cancelled contract, after the fact, has no motivational benefit at all. (For an indepth discussion of the relationship between organizational control and human motivation theory, see Lawler and Rhode, 1976, and McGregor, 1985.)

Results Controls. Everyone wants to get desired results. This is definitional. Why would anyone invest scarce resources in a program when it could not be clearly shown that the desired results were, or would be, obtained? Unfortunately, such a simplistic viewpoint has no real merit in the analysis of management controls. As implied above, results controls represent only one of several justifiable means of controlling program activities. Results controls do, however, focus attention on the impact, or ultimate outcome, of the program or activity, and they do offer more autonomy to producers than most other forms of control. For these reasons, this control category should always be considered. As understood in the control framework described here, results control requires that the desirable result must be known, the desirable result must be controllable, and the desirable result must be measurable. As noted earlier, the ultimate outcome desired of CCE is the reduction of institutionalization, and Subsection 410.024 (9) provides that the program be evaluated in terms of

this reduction. With this statute, the legislature imposed results control on administrators, but results control may be easier to mandate than to accomplish.

CCE offers a good illustration of a public program in which implementing results control is very difficult even in cases where the program itself has a great deal of intuitive appeal, as does CCE. Everyone can see the intrinsic benefit of assisting the elderly in their efforts to live independently and with dignity. Just as clearly, providing core services such as meals and transportation must surely be beneficial for people who need these services. But do these services reduce the rate of institutionalization? That is the results control question posed by the legislature. Approximately eight years after the initial passage of the Community Care for the Elderly Act, evaluators had not resolved the question. They were faced with widely differing statistical results and methodological difficulties, and they had come to the realization that regardless of whether the program was otherwise effective, nursing facilities were operating in the State of Florida at such high capacity levels that elderly persons needing institutional care were on lengthy waiting lists. Perhaps it was this constraint, not CCE, that was effectively limiting the growth of institutionalization of elders. Results control in the case of CCE was simply not feasible because the program did not meet the three requirements necessary for implementation of results control. Other control theory and other control options had to be considered. It is in circumstances such as this that the diagnostic perspective provided by the control model should be most beneficial in designing alternative programmatic controls.

Summary

This article presents an analytic model that may be helpful in the diagnosis of control issues and the design of control strategies in public organizations. An integrated overview of the various categories of control options presents a useful framework from which the analysis of complex management scenarios can be made and with which applicable control options and strategies can be highlighted.

Application of the model to the public program established under the Community Care for the Elderly Act in the State of Florida suggests that the following control options might have been beneficially undertaken:

Explicit analysis of competitive market conditions found in the quasi-market environment of CCE for the purpose of more fully using market controls to produce efficient, effective program results

Explicit attention to ideology, attitudes, values, decision premises, and enculturated patterns of behavior among caregivers to facilitate accomplishment of program goals

Explicit attention to the motivational aspects of interactions with subcontractors for the purpose of providing effective rewards and punishments for contract compliance and noncompliance

Explicit attention to the apparent contradiction between legislatively mandated results control (Florida Statutes, Subsection 410.024 (9)) and the longlasting inability to obtain a measure of results of the program in terms of reduced institutionalization of elderly persons. Early resolution of such contradictions would tend to clarify legislative goals.

It is suggested that the analytic model presented here may be used beneficially at two levels. First, for practicing public managers who find

themselves faced with maintaining control of an existing public program, the model offers insight into the analysis of control problems and issues while defining control options that may be available. The manager is encouraged by the model to focus attention on the strategic decision to use either political controls, avoidance controls, personnel controls, action controls, or results controls. Second, and perhaps more importantly, because control issues are best resolved when public programs are designed, not when they are implemented, the use of this analytic model during the initial design stage of public programs may provide needed guidance in the selection of workable options for controlling programs after they are in place. With foresight, program mandates that cannot be controlled may be avoided.

Additional research into public and private sector management practices may provide an inventory and detailed description of specific control mechanisms and techniques that fit into the various control categories discussed here. Given such an inventory and typology, perhaps a process for matching specific mechanisms to specific organizational control problems can be more fully articulated.

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...TEXT: ambiguous; agency employees are driven by widely differing internalized value systems and harbor goals that conflict with goals of other employees as well as with program goals; tasks vary with respect...

...with an abbreviated inventory of control mechanisms that fit into the various categories. The flow chart shown in Figure 1 (pp. 4-5) depicting the general control model is an adaptation and combination of separate flow charts developed by Hofstede (1981) and Merchant (1985). (Figure 1 omitted) Feasibility criteria designed to determine...

...when organizational goals are ambiguous (Hofstede, 1981). Such goals are likely to result "because of conflicts of perceived interests and/or values among those having a say in the activity" (p...

...higher authorities to set rules and fixed policies that remove ambiguity for lower levels; subjecting **conflicts** of perceived interests and values to trade-offs through negotiation (a negotiated goal is not...

...power structures, negotiation processes, the need for the distribution of scarce resources, particular interests, and **conflicting** values; however, political control at the top of an organization can go together with other...who will not make costly errors in judgment. Another example of administrative constraint is the **separation of duties**, wherein a particularly sensitive task is decomposed into one or more processes so that more...

...individual is required to complete the whole task. "Proper administrative constraints such as centralization and **separation of duties** make it impossible to complete certain tasks that should not be completed. The end result...

...controls to be feasible, results must be more deterministic than uncertain. (Agency theory recognizes the **risk**-bearing implications of control strategies. See Eisenhardt, 1985, and Fama and Jensen, 1986, for an ...to provide maximum open and free competition. The lead agency must be alert to organizational **conflicts** of interest or noncompetitive practices among contractors, which may restrict or eliminate competition or otherwise

...operating. It is true, however, that market control requires more than the mere absence of **conflicts** of interest or the presence of noncompetitive practices among contracting parties. Although these are necessary...The Human Side of Enterprise. New York: McGraw-Hill, 1985.

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